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MEMORANDUM

TO: Narindar Kumar
Branch Chief
Region IV EPA

THRU: Ken Taylor, P.G.
Division of Hydrogeology Director
Bureau of Land & Waste Management *GT*

FROM: Jack Gelting, P.G. *JG*
Hazardous Waste Section Manager
Division of Hydrogeology

DATE: September 26, 2000

RE: Evaluation of T & S Brass' status under the RCRA Corrective Action
Environmental Indicator Event Code CA750
EPA ID # SCD 002 038 545

I. PURPOSE OF MEMO

This memo is written to formalize an evaluation of T&S Brass' status in relation to the following corrective action event code defined in the Resource Conservation Information System (RCRIS):

1) Migration of Contaminated Groundwater Under Control (CA750)

**II. HISTORY OF ENVIRONMENTAL INDICATOR EVALUATIONS AT THE FACILITY
AND REFERENCE DOCUMENTS**

This particular evaluation is the second evaluation for T&S Brass. A copy of the earlier memo is attached. Also attached is the Project Schedule for Meeting Environmental Indicators. The Project Schedule is met by virtue of this document.

The earlier evaluation indicated human exposures are controlled and this evaluation shows that groundwater releases are also controlled.

III. FACILITY SUMMARY

T&S Brass is located on Old Buncombe Road in Traveler's Rest, S.C. in Greenville County. Metal plating processes have contributed contamination to groundwater via an emergency wastewater pretreatment lagoon area. Wastewater generated in the manufacturing process is normally pretreated in on-site facilities and then discharged to the Western Carolina Regional Sewer Authority.

The facility is surrounded by a fence and security exists to guard the entrance to manufacturing areas of the plant. T&S Brass no longer operates a land-based hazardous waste treatment unit at the Traveler's Rest facility. The Post-Closure permit was appealed with regard to the regulated status of the waste units. The company conducts groundwater monitoring and corrective action in accordance with the Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities.

IV. CONCLUSION FOR CA725

Human Exposures are currently under control as per the original Environmental Indicator Evaluation, dated September 25, 1998. The CA725 code is YES.

V. CONCLUSION FOR CA750

Much data support the conclusion that contaminant releases to groundwater are controlled. Please see the attached Documentation of Environmental Indicator Determination. The CA750 code is YES.

VI. SUMMARY OF FOLLOW-UP ACTIONS

T&S Brass shall continue to operate the groundwater extraction system. The system was recently augmented by the addition of a new pumping well. Security and on-going monitoring will need to be maintained to continue to meet the standards set forth by the Environmental Indicators for RCRA Corrective Action.

Attachments: 1998 EI evaluation
Project Schedule for Meeting EIs
2000 Documentation of EI Determination

cc: Craig Ashton



MEMORANDUM

TO: G. Kendall Taylor, P.G., Division Director
Division of Hydrogeology
Bureau of Land and Waste Management

FROM: Jack Gelting, Section Manager
Hazardous Waste Section
Division of Hydrogeology
Bureau of Land and Waste Management

SUBJ: Evaluation of T&S Brass' status under the RCRIS
Corrective Action Environmental Indicator Event Codes
(CA725 and CA750)
EPA I.D. Number SCD 002038545

DATE: September 25, 1998

I. PURPOSE OF MEMO

This memorandum is written to formalize an evaluation of T&S Brass' status relative to the following corrective action event codes defined in the Resource Conservation and Recovery Information System (RCRIS):

- 1) Human Exposures Controlled Determination (CA725),
- 2) Groundwater Releases Controlled Determination (CA750).

These event codes are applicable according to the definitions and guidance provided by the Office of Solid Waste (OSW) in the July 29, 1994, memorandum to the Regional Waste Management Division Directors, and clarification provided by USEPA Region IV in October 1997.

The State of South Carolina became authorized, in January 1995, for implementing those portions of RCRA covered under the HSWA Corrective Action process. The recommendations provided in this document have been generated in cooperation with the USEPA Region IV staff through the use of EPA's current Environmental Indicator ranking system.

II. HUMAN EXPOSURES CONTROLLED DETERMINATION (CA725)

There are five (5) national status codes under CA725. These status codes are:

- 1) YE Yes, applicable as of this date.
- 2) NA Previous determination no longer applicable as of this date.
- 3) NC No control measures necessary.
- 4) IN More information needed.
- 5) NO Facility does not meet definition.

Note that CA725 is designed to assess the potential for human exposures over the entire facility (i.e., the code does not evaluate specific actions undertaken at individual SWMUs). Therefore, every area at the facility must meet the definition before a YE, or NC, status code can be entered for CA725. The NO status code should be entered if there are current unacceptable risks to human health due to releases of hazardous wastes or hazardous constituents from any SWMU(s) or AOC(s). The IN status code is designed to cover those cases where insufficient information is available to make an informed decision on whether human exposures are controlled. If an evaluation determines that there are both unacceptable and uncontrolled current risks to human health at the facility (NO) along with insufficient information on contamination or exposures at the facility (IN), then the priority for the EI recommendation is the NO status code.

This particular CA725 evaluation is the first evaluation performed by DHEC for T&S Brass. Because assumptions have to be made as to whether human exposures to current media contamination are plausible and, if plausible, whether controls are in place to address these plausible exposures, this memo first examines each environmental medium (i.e., soil, groundwater, surface water, air) at the entire facility including any offsite contamination emanating from the facility rather than from individual areas or releases. After this independent media by media examination is presented, a final recommendation is offered as to the proper CA725 status code for T&S Brass.

The following discussions, interpretations and conclusions on contamination and exposures at the facility are based on the following reference documents: 1998 Semi-Annual Report (Davis & Floyd) dated July 1998, 1997 Groundwater Corrective Action Report (Davis & Floyd) dated March 1998, the September 1988 Post-Closure

Permit Application (portions revised, permit appealed in 1990) as well as notes and observations made on-site on June 24, 1998. Note we have no record of a formal RCRA Facility Investigation.

III. FACILITY SUMMARY

T&S Brass is located on Old Buncombe Road in Traveler's Rest, S.C. in Greenville County. Metal plating processes have contributed contamination to groundwater via an emergency wastewater pretreatment lagoon area. Wastewater generated in the manufacturing process is normally pretreated in on-site facilities and then discharged to the Western Carolina Regional Sewer Authority.

The facility is surrounded by a fence and security exists to guard the entrance to manufacturing areas of the plant. T&S Brass no longer operates a land-based hazardous waste treatment unit at the Traveler's Rest facility. The Post-Closure permit was appealed with regard to the regulated status of the waste units. The company conducts groundwater monitoring and corrective action in accordance with the Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities.

IV. MEDIA BY MEDIA DISCUSSION OF CONTAMINATION AND THE STATUS OF PLAUSIBLE HUMAN EXPOSURES

Soil:

Leaching of contaminants to underlying soils and groundwater has occurred. However, cover materials do prevent direct contact or exposure to on-site employees. The former wastewater lagoons are also covered. Therefore, no imminent risk of exposure to humans exists due to a lack of a plausible route of exposure.

Therefore, human health exposures to contaminated soils are presently considered to be controlled at T&S Brass.

Groundwater:

Groundwater has been contaminated at T&S Brass and the facility has been operating three bedrock recovery wells since 1990 to control contaminant plume migration. The groundwater contaminant plume extends beyond the northern property boundary and contamination within the saprolite and bedrock aquifers was historically documented beyond the property boundary in downgradient monitoring wells, predominantly in the form of a nickel plume.

The ability of the bedrock recovery well system, located at

the northern property boundary, to control the full extent of the offsite lobe of groundwater contamination, is presently considered adequate. The property north of T&S Brass is residential/commercial but groundwater has not been developed for either irrigation or potable supply. However, all groundwater in the state of South Carolina is classified as a potential drinking water supply.

The animal hospital located northeast of T&S Brass and the neighboring residential area were thoroughly investigated by the writer at the time of the site visit. No evidence of anything but city water service for animals or humans was found. An out-of-service well within a 1/4 mile radius was identified in 1988. The owner of that well could not be located, nor could the actual well head.

Because of the ability of the operating groundwater recovery system to halt further offsite migration, groundwater releases at T&S Brass are considered to be in remediation. An overview of the historic data support the conclusion that the plume has been captured. If the system proves ineffective at any future time, either because of actual changes or further investigation, this RCRIS determination can be changed.

Surface Water:

Drainage from the subject property is best characterized as radial. The surface is a dissected knoll. Drainage likely flows predominantly to a westward tributary that flows to the Reedy River. Drainage from the south side of the plant migrates to a small branch to the south with eventual discharge to the Reedy River. There are no direct discharges of wastes or wastewater from T&S Brass to either of the tributaries near the site. However, indirect discharge may occur through the discharge of contaminated groundwater to surface water, or through surface water run-off from the process area of the site during high intensity rainfall events.

Very little analytical data is available to the writer regarding surface water quality.

Air:

There is no evidence in the Bureau of Land & Waste Management files of contamination to air by the T&S Brass facility.

V. STATUS CODE RECOMMENDATION FOR CA725:

Human exposures to contaminants released into groundwater have been controlled. The facility continues to operate an active groundwater remediation program. Other routes of exposure have not been identified in the course of this investigation. Therefore, it is recommended that CA725 YES be entered into RCRIS.

VI. GROUNDWATER RELEASES CONTROLLED DETERMINATION (CA750)

There are five (5) status codes listed under CA750:

- 1) YE Yes, applicable as of this date.
- 2) NA Previous determination no longer applicable as of this date.
- 3) NR No releases to groundwater.
- 4) NO Facility does not meet definition
- 5) IN More information needed.

The status codes for CA 750 are designed to measure the adequacy of actively (e.g., pump and treat) or passively (e.g., natural attenuation) controlling the physical movement of groundwater contaminated with hazardous constituents above relevant action levels. The designated boundary (e.g. the facility boundary, a line upgradient of receptors, the leading edge of the plume as defined by levels above action levels or cleanup standards, etc.) is the point where the success or failure of controlling the migration of hazardous constituents is measured for active control systems. Therefore, every contaminated area at the facility must be evaluated and found to have the migration of contaminated groundwater controlled before a "YE" status code can be entered.

If contaminated groundwater is not controlled in any area(s) of the facility, the NO status code should be entered. If there is not enough information at certain areas to make an informed decision as to whether groundwater releases are controlled, then the IN status code should be entered. If an evaluation determines that there are both uncontrolled groundwater releases for certain units/areas (NO) and insufficient information at certain units/areas of groundwater contamination (IN), then the priority for the EI recommendation should be the NO status code.

This evaluation for CA750 is the first formal evaluation performed for T&S Brass. Please note that CA750 is based on the adequate control of all contaminated groundwater at the facility. The following discussions, interpretations and conclusions on contaminated groundwater at the facility are based on the following reference documents: 1998 Semi-Annual Report (Davis & Floyd) dated July 1998, 1997 Groundwater Corrective Action Report (Davis & Floyd) dated March 1998, the September 1988 Post-Closure Permit Application (portions revised, permit appealed in 1990) as well as notes and observations made on-site on June 24, 1998.

VII. STATUS CODE RECOMMENDATION FOR CA750:

Contaminated groundwater had migrated offsite prior to installation of the three-well recovery system.

Based on the values in the references cited, groundwater contamination offsite exists in the form of a nickel and sulfate plume. In November 1997, the highest detectable concentration of tetrachloroethene was 26.9 micrograms per liter in MW-10. MW-10 is almost immediately adjacent to the northern property line. Similarly, the highest detectable concentration of chromium was found at the property line, in MW-5, which serves as a recovery well. However, because the ability of the operating groundwater recovery system to halt further offsite migration is presently known, groundwater releases at the site as a contributor to human exposures are considered controlled (See CA725 recommendation). However, a status code of CA750 NO is recommended for this site. The values of nickel detected in off-site, downgradient groundwater exceed Maximum Contaminant Levels established as drinking water standards.

VIII. SUMMARY OF FOLLOW-UP ACTIONS:

A legal opinion on the merits of the appeal of the Post-Closure permit would be helpful. The possibility of resolution seems good, given the work the company has done in remediating groundwater. Exploration of possible ways to motivate the facility to get into permitted status may be in order. This is always an issue with post-closure-only permits which simply "allow" the facility to clean up. A post-closure order may be considered.

Monitoring well MW-1 serves as the background quality monitoring well. MW-1 is at the top of a remnant erosional feature, with a distinct drainage divide between MW-1 and the plume. The entire plant grounds comprise a sort of knoll. A better background groundwater quality monitoring well location could and should be selected.

Given the above referenced recent data indicating groundwater contamination above relevant action levels beyond the property line, consideration should be given to another recovery well located in the vicinity of MW-10 and MW-12.

Finally, either through permitting or enforcement mechanisms, T&S Brass should be required to complete a RCRA Facility Investigation and accompanying Corrective Measures Study Workplan, if necessary.

cc: Region IV EPA
Harriet Gilkerson

Project Schedule for Meeting Environmental Indicators

I. Basic Information

Name and I.D. No.	Location (City or Town)	Date of Latest EI Memo	CA 725 Decision	CA 750 Decision
T & S Brass SCD 002 038 545	Traveler's Rest, SC	September 25, 1998	Yes	No

II. Brief Facility Background

Metal plating processes have contributed contamination to groundwater via an emergency wastewater pretreatment lagoon area. The RCRA hazardous waste postclosure permit was appealed with reference to the regulated status of the waste units. T & S Brass (TSB) has been remediating groundwater contamination by method of extraction.

III. Brief Outline of Issues Leading to an EI of NO or IN

A. CA 725:

Plausible human exposure routes are considered to be controlled (YES).

B. CA 750:

The following SWMUs were listed in the appealed permit as requiring an RFI: wastewater containment pit, wastewater collection well, sludge drying beds, final neutralization tank, sludge storage area, wastewater piping. The operational groundwater extraction system consists of three recovery wells and a monitoring network extending offsite. The recovery rate is very low, reflecting the low permeability of the erosional saprolite subsurface.

IV. Discussion of What is Needed to Get to Yes, with Schedule (a.k.a EI Interim Milestone)

A. CA 725:

This activity is currently coded YES.

B. CA 750:

Traditional interim status groundwater remediation methods such as well recovery have been implemented. The signature contaminant of this groundwater plume is nickel. Monitoring costs could be reduced and/or directed to finalizing a YES conclusion i.e. that groundwater release has been controlled. This evaluation reveals that a dialogue does not exist with regard to the appeal of the RCRA postclosure care permit. Action in this connection will be initiated by the State in FY2K.

DRAFT

EI Interim Milestone Schedule Format and Example

T & S Brass				
Activity(ies) (events as defined in RCRIS)	Activity CA RCRIS Event Code	Scheduled Date (QTR & FY)	EI Code (725/750)	Remarks (Include unit and description of actions)
ex: Stabilization Construction Complete	CA650	6/30/00	750	Sitewide: Review of GW effectiveness monitoring report shows stabilization objectives to have been met.
ex: Migration of Contaminated Groundwater Under Control	CA750	9/30/00	750	Revised EI Memo

V. Level of Confidence in Meeting EI's, and Major Issues

CA750 YES - Groundwater Releases Controlled 9/30/00 - - -
 Comment: Medium Confidence

Note: Resolution of the appealed EPA permit and beginning a cooperative process resulting in consensus on remedial objectives, will be necessary to achieve these goals. TSB has implemented interim measures.

**Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS Event Code (CA725)**

**ATTACHMENT-~~1~~
DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
RCRA Corrective Action
Environmental Indicator (EI) RCRIS Code (CA725)
Current Human Exposures Under Control**

Facility Name: T & S Brass
Facility Address: Old Buncombe Road, Traveler's Rest, S.C.
Facility EPA ID #: SCD 002 038 545

1. Has all available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been considered in this EI determination?

☒ If yes - check here and continue with #2 below,
☐ If no - re-evaluate existing data, or
☐ If data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS Event Code (CA725)

2. Are groundwater, soil, surface water, sediments, or air media known or reasonably suspected to be "contaminated"¹ above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

Media	Yes	No	?	Rationale/Key Contaminants
Groundwater	✓			MCLs exceeded/Nickel, TCE
Air (indoors) ²		✓		
Surface Soil (e.g., <2 ft)		✓		
Surface Water		✓		
Sediment		✓		
Subsurface Soil (e.g., >2 ft)		✓		
Air (outdoors)		✓		

_____ If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

✓ _____ If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

_____ If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s): Maximum Contaminant Levels (MCLs)
have been exceeded in groundwater on- and
off-site. See 1999 Annual Corrective Action
Report and 2000 quarterly reports.

¹ "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

² Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS Event Code (CA725)

- _____ If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.
- _____ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code

Rationale and Reference(s):

City water service. DHEC inspected
residences and veterinarian/kennel
to ensure there are no drinking
water wells.

and enter “YE” after summarizing and referencing documentation justifying why all “significant” exposures to “contamination” are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

- Rationale and Reference(s):